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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,553	02/26/2004	Leonardo Dalloro	249334US0X	3243
22850	7590	08/30/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			STRICKLAND, JONAS N	
			ART UNIT	PAPER NUMBER
			1754	
DATE MAILED: 08/30/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/786,553

Applicant(s)

DALLORO ET AL.

Examiner

Jonas N. Strickland

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tabak et al. (US Patent 4,152,363).

Applicant claims a process for the synthesis of mesitylene which comprises treating pseudocumene with a catalytic composition containing a zeolite, in acid or prevalently acid form, selected from ZSM-5 zeolite having a crystal lattice made up of silicon oxide and aluminum oxide, and ZSM-5 modified by the partial or total substitution of Si with a tetravalent element such as Ti or Ge and/or the partial or total substitution of Al with other trivalent elements, such as Fe, Ga, or B.

Tabak et al. discloses a vapor phase isomerization process of methyl-substituted aromatic hydrocarbons improved by using a highly diluted zeolite catalyst., wherein the catalyst material is comprised of a crystalline aluminosilicate zeolite having a silica/alumina mole ratio greater than 12, in a reaction zone maintained under conditions such that isomerization is accomplished (see abstract). The zeolite is generally in the ZSM-5 type and Tabak et al. continues to disclose wherein the zeolite catalyst may also be substituted with Fe (col. 2, lines 41-47). With respect to claim 6, Tabak et al. continues to disclose wherein the zeolite is combined with a binder material, which

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includes alumina, magnesia, zirconia, and silica (col. 9, lines 17-25). The proportion of the zeolite with respect to the binder may vary (col. 9, lines 26-32). The WHSV space velocity is maintained from 0.5 hr^{-1} to 20 hr^{-1} (col. 9, lines 51-56). The reaction is carried out in a fixed bed (col. 9, lines 48-50). Tabak et al. also discloses wherein the catalyst is used for treating pseudocumene (col. 10, lines 19-21).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 9-11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabak et al. (US Patent 4,152,363) in view of Yan (US Patent 5,004,854).

Applicant claims with respect to claims 9-11, wherein the temperature ranges from 225 to 400°C and the pressure is between 1 to 50 bar and wherein the pseudocumene comes directly from distillation.

The teachings of Tabak et al. have been discussed with respect to claims 1-8, 12 and 13. However, Tabak et al. does not clearly disclose the limitations of claims 9-11 and 16.

Yan teaches a process for the production of pseudocumene and mesitylene. The process is carried out under catalytic upgrading conditions using a catalyst comprised of a crystalline zeolite having a silica-to-alumina ratio of at least 12, wherein the zeolite is preferably ZSM-5 (see abstract). The reaction is carried out under a process at a temperature of 700°F and pressures of 15 to 2000 psig (col. 3, lines 21-25). Furthermore, Yan teaches wherein the pseudocumene comes directly from distillation, with respect to claim 16 (col. 2, lines 26-29).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Tabak et al., based on the teachings of Yan, by maintaining a reaction condition wherein the temperature ranges from 225 to 400°C and the pressure is between 1 to 50 bar and wherein the pseudocumene comes directly from distillation, because Yan teaches a process for producing pseudocumene and mesitylene using a

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zeolite catalyst, wherein the reaction occurs at a temperature of 700°F and pressures of 15 to 2000 psig and wherein the pseudocumene comes directly from distillation. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have expected a process for producing pseudocumene using a zeolite catalyst as taught by Yan to have been similarly useful and applicable to a process for producing pseudocumene using a zeolite catalyst as taught by Tabak et al.

7. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabak et al. (US Patent 4,152,363) in view of Kresge et al. (US Patent 5,258,565).

Applicant claims with respect to claims 14 and 15, wherein the pseudocumene is de-oxygenated by means of degassing with an inert gas or by boiling. The teachings of Tabak et al. have been discussed with respect to claims 1-8, 12 and 13, but the reference is silent in regards to the limitations of claims 14 and 15.

However, Kresge et al. teaches a process for preparing short chain alkylaromatic compounds, which include treating pseudocumene and mesitylene (col. 3, lines 43-47) with an inert gas and then contacting the feedstream with a zeolite catalyst (col. 14, lines 46-51).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Tabak et al., based on the teachings of Kresge et al., by de-oxygenating pseudocumene, before contact with a zeolite catalyst, with the help of an inert gas. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have expected a process for producing

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pseudocumene as taught by Kresge et al., to have been similarly useful and applicable to a process for producing pseudocumene as taught by Tabak et al.

Allowable Subject Matter

8. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The instantly claimed invention is allowable over the cited prior art, because the cited prior art fails to disclose the instantly claimed regeneration method with respect to a catalyst comprised of treating pseudocumene for the synthesis of mesitylene.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N. Strickland whose telephone number is 571-272-1359. The examiner can normally be reached on M-TH, 7:30-5:00, off 1st Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonas N. Strickland
August 23, 2005



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